

REMARKS

The present amendment cancels without prejudice three independent claims and adds two, for a net deletion of one independent claim. The cancellation of claims 86, 87, 90, 93, 97, 110, and 116 and the addition of claims 117 to 150 results in a net addition of 78 claims, for which a fee of \$1716 is due. Permission is given in the accompanying transmittal form to charge deposit account 21-0175 for this fee.

In applicants' last communication (delivered to the USPTO on April 28, 1994), the applicants presented method claims to the use of novel and unobvious unleaded gasoline compositions, the broadest of said compositions being defined in claims 83 and 106, as summarized in the following Table A:

Table A						
RVP psi	T ₅₀ °F.	T ₉₀ °F.	Olefin Vol. %	Paraffin Vol. %	Octane	Oxygenate Required?
<7	≤210	<300	<10		≥87	No

After applicants' last communication, a review of the present application led applicants to recognize that they could also have included claims to the use of five additional gasoline compositions disclosed in the specification which were novel and unobvious over the prior art but which were not covered in any of the previously pending method claims 83 to 116. These compositions have properties as identified in the following Table B:

Table B

	RVP psi	T ₅₀ °F.	T ₉₀ °F.	Olefin Vol. %	Paraffin* Vol. %	Octane	Oxygenate Required?
1	<7	≤210			>72	≥87	No
2	<7	≤210			>65	≥92	No
3	<7	<193		<10		≥87	No
4	<7	≤210		<1		≥87	No
5	<7	≤210		<10		≥87	Yes** ≤17.2% MTBE

*Paraffins (i.e., all saturates, as determined by FIA test, per Tables 2 & 5 of specification)

** Total oxygen equal to equivalent of 17.2% volume percent MTBE, max.

The main purpose of the present amendment is to gain protection for the use of the five unleaded gasoline compositions of Table B in methods entirely analogous to one or more of method claims 83 to 116--and specifically, in an automobile engine to lower the amount of pollutants in the exhaust emitted from the catalytic converter (claims 142-150) or in aiding in the reduction of air pollution in a geographical region with significant air pollution (claims 117 - 141). It will be seen that these five novel and unobvious unleaded gasoline compositions are set forth as a 5-membered Markush group (in the same order as listed numerically in Table B) in the two newly added independent claims 117 and 142, which in turn have been drafted to be otherwise similar to pending claims 106 and 83, respectively.

In their Amendment and IDS #3 submitted to the USPTO on April 28, 1994 the applicants advanced their arguments as to the patentability of claims 83 to 116 as directed to novel and unobvious methods--and, in particular, to the novel and unobvious use of unleaded gasoline compositions which themselves were novel and unobvious. The same arguments pertain identically or by close analogy to newly added claims 117 to 150.

In particular, the invention is patentable over all art submitted to the USPTO with applicants' IDS #3. A great amount of information was presented and discussed in this IDS #3, but on inspection, it will be found that very little of it pertains to unleaded gasolines having both an RVP less than 7.0 psi and a T50 no greater than 210° F. Thus, it should take only little time to confirm that these five gasolines are indeed novel and unobvious over the art cited in IDS #3, as will now be shown.

In IDS #3 Sections A, D, and F pertain to gasolines having an RVP less than 7 psi and a T50 no greater than 210° F.

With regard to Section A, an Attachment A was included listing the properties of the most pertinent gasolines discussed in Section A. (A copy of Attachment A is enclosed herewith.) As can quickly be verified, none of the gasolines listed in Attachment A falls within the five compositions of Table B. Likewise, Attachment C (copy enclosed) from Section D of IDS #3, listing the properties of all gasolines on the Niper summer data base from 1976 to 1990 (sans 1987) having an RVP \leq 7 psi and T50 \leq 215° F., evidences no gasoline falling within the scope of the five compositions of Table B.¹ Finally, in Section F of IDS #3, the data relating to the 6/86 Honolulu gasoline (on page 25 of Attachment I), while admittedly falling within the scope of some of the five claimed compositions, cannot be used as prior art since other information presented with IDS #3 (in particular the affidavits of Ms. Minner and Dr. Russell) clearly establishes the error in the reported 6.7 psi RVP value for the 6/86 Honolulu fuel. Accordingly, the applicants submit that all five fuels recited in the two newly added independent claims 117 and 142 are novel and unobvious over the prior art.

Accordingly, although the present amendment introduces method-of-use claims covering five new compositions, **the issues in this case remain substantially unchanged.** Where the applicants had been seeking coverage for methods pertaining to one novel and unobvious gasoline composition, the claims of the application now seek to cover six such compositions. In all other important respects, the arguments made in applicants' AMENDMENT of April 28, 1994 are entirely applicable to the present claims. Hence, the applicants submit that all claims as presently drafted define novel and unobvious subject matter within the meaning of 35 USC 102 and 103.

¹ Indeed, only two compositions listed in Attachment C are unleaded gasolines with an RVP less than 7 psi, and as to those two, there are no data as to (1) olefin content, (2) paraffin content, or (3) oxygenate presence, at least one of which three features is required in each of the five compositions recited in claims 117 and 142.

The Examiner will also note that the compositions recited in the newly added claims are fully supported by the disclosure. In particular, support for limitations found in the newly added claims can be found as follows:

<u>Limitation</u>	<u>Support</u>
RVP less than 7 psi	Page 3, line 31
T50 no greater than 210° F	Page 28, line 17
T50 less than 200° F	Page 28, lines 19 & 20
T50 less than 193° F	Page 28, lines 21 & 22
Octane value of 87+	Page 9, line 8
Octane value of 92+	Page 9, line 8
T90 no greater than 315° F.	Original Claim 18 & 26
T90 less than 300° F.	Original Claim 29
Paraffin content greater than 72%	Page 29, lines 30 & 31
Paraffin content greater than 65%	Page 29, lines 28 & 29
Olefin content less than 10%	Page 28, line 34
Olefin content less than 8%	Page 28, line 34
Olefin content less than 6%	Page 28, line 35
Olefin content less than 1%	Page 28, line 35
Presence of Oxygenate up to 17.2%	Page 8, lines 29 to 33 Page 36, lines 1 to 10 Table 2
10.1 to 17.2% Oxygenate	Page 8, lines 29 to 33 Page 36, lines 1 to 10 Tables 2 and 5
10.1 to 14.9% Oxygenate	Page 8, lines 29 to 33 Page 36, lines 1 to 10 Tables 2 and 5

Finally, a word with regard to amended claims 94, 98, and 99. The limitation for a T10 maximum of 140° F. introduced into claims 94 and 98 is supported in the specification at page 29, line 16. Claim 99 was amended to contain an RVP limitation of "no greater than 6.8 psi," this limitation having been cancelled from claim 98 and supported by the disclosure on page 29, lines 5 to 12.

Having thus shown support for all the composition limitations of claims added or amended by the present amendment, and having limited their claims to novel and unobvious methods of use, the applicants submit that their invention as claimed is patentable. An allowance is requested.

Respectfully submitted,



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July 27, 1994

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22      if t50 ne .;
23      if mtbe ne .;
24      if mtbe lt 50;
25      if paraf gt 65;
26      run;

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NOTE: The infile IN is:
 FILENAME=d:_____gas.da.
 RECFM=V,LRECL=250

Post-It™ brand fax transmittal memo 7671		of pages	1
To: Greg Wierlicki		From: Peter Tessup	
Co.		Co.	
Deli		Phone #	730 9748
Fax #		Fax #	731 3277

NOTE: Invalid data for MTBE in line 45541 213-216.

RULE: 45541 9003 MIAMI MOBIL RU 91.4 82.0 86.7 89.0
 66 88.9 62.9 12.2 2.44 108 113
 131 120 124 131 90 94 111 123 132 148 168 192 218 244 279 328 355
 196 380 95.0 1.0 4.0 <0.0 216

CITY-MIAMI COMPANY-MOBIL GRADE-RU YY-90 MM-3 RON-91.4 MON-82.0 AKI-86.7
 RVP-12.2 AROM-. OLEF-. PARAF-. T50-192 T90-328 MTBE-. _ERROR_-1 _N_-45541

NOTE: 50633 records were read from the infile IN.

The minimum record length was 89.

The maximum record length was 236.

NOTE: The data set WORK.ONE has 0 observations and 15 variables.

NOTE: The DATA statement used 1 minute 21.94 seconds.

```

27
28 proc print;
29   title1 '_____ data base subset with';
30   title2 'RVP <= 7.5';
31   title3 'olefins < 10';
32   title4 'T50 <= 215';
33   title5 'T90 <= 315';
34   title6 'paraffins > 65';
35   title7 'prior to 1991';
36   title8 'd:\_____output';
37   run;

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NOTE: No observations in data set WORK.ONE.

NOTE: The PROCEDURE PRINT used 0.59 seconds.

RVP = 7.5 ps; Paraffins > 65
 Olefins < 10
 T50 <= 215
 T90 <= 315



Niper Gasoline Survey Summer 1976 - 1990
 except 1987 16:07 Friday, September 2, 1994
 RVP <= 7.5 psi, T50 <= 215 F, and T90 <= 315 F 5

OBS	RVP (psi)	T50 (F)	T90 (F)	MeOH	EtOH	tBuOH	Other O	TEL	R+M/2	DATE
1	0.0	.	.	.	.	.	.	0.26	89.20	7/86
2	4.5	.	.	.	.	.	.	.	88.05	6/86
3	6.3	205	305	.	.	.	.	3.34	86.50	8/76
4	6.4	205	306	.	.	.	.	0.01	85.80	8/81
5	6.5	202	307	.	.	.	.	.	87.10	8/76
6	7.0	201	299	.	.	.	.	0.01	90.90	6/76
7	7.1	208	309	.	.	.	.	3.24	91.90	8/80
8	7.2	.	.	.	.	.	.	.	87.30	8/90
9	7.2	210	300	.	.	.	.	.	87.60	8/76
10	7.2	214	314	.	.	.	.	.	87.35	6/80
11	7.3	185	305	.	.	.	.	1.40	94.30	6/78
12	7.3	203	314	.	.	.	.	.	87.90	5/79
13	7.3	207	309	.	.	.	.	.	90.65	6/78
14	7.3	210	308	.	.	.	.	.	93.85	6/77
15	7.4	205	303	.	.	.	.	0.03	90.35	6/78
16	7.4	210	302	.	.	.	.	2.60	94.80	6/76
17	7.4	210	305	.	.	.	.	0.05	90.35	6/78
18	7.4	213	302	.	.	.	.	3.24	95.65	8/76

LR Unleaded Plus 87 - Blend Sheet Data (NOT INCLUDING HQ GRADE)

DATE	BARREL	DEG. API	RVP	VL	BROMIN	SULFUR	MERCAP	MON	R+M2	10% PT	50% PT	90% PT	WJN
MAY 10 1989	83.7	55.5	8.1	2	3	36	0.3	83.2	87.3	127	231	352	411
JUN. 21 1989	81.0	59.2	8.1	18	16	144	0.2	83.3	87.3	128	202	351	382
AUG. 26 1988	79.0	57.2	8.1	16	18	273	1.3	82.8	87.4	125	200	350	379
AUG. 30 1988	79.0	59.1	8.1	17	10	228	1.1	82.8	87.4	126	204	328	376
JUL. 24 1989	68.8	55.0	8.0	19	1	19	0.9	82.8	87.2	128	202	317	371
OCT. 25 1989	63.8	62.4	8.0	7	18	136	0.6	83.4	87.2	128	203	326	375
MAY 15 1989	61.4	63.1	8.0	17	25	189	1.2	83.5	87.4	130	198	335	374
MAR. 24 1989	64.3	56.8	8.0	2	1	19	0.9	83.1	87.3	130	192	304	357
AUG. 24 1988	79.0	61.2	8.0	21	16	213	0.9	83.1	87.3	121	188	320	354
AUG. 18 1988	84.0	59.3	8.0	10	2	19	1.0	84.2	87.3	128	195	326	367
FEB. 2 1989	81.4	63.6	7.9	1	13	159	1.0	83.5	87.4	134	199	306	366
MAY 29 1989	83.7	55.8	7.9	7	10	116	0.8	82.8	87.3	127	203	328	375
AUG. 9 1989	71.8	61.0	7.9	19	1	19	0.5	83.7	87.2	128	188	293	348
FEB. 22 1989	84.0	55.5	7.9	1	3	29	0.9	83.3	87.3	135	209	310	378
JUL. 30 1988	83.9	57.0	7.9	13	18	213	1.5	82.8	87.4	130	204	322	366
JUN. 13 1987	58.9	58.6	7.9	21	25	210	1.8	82.2	87.0	115	185	335	364
FEB. 10 1987	73.9	55.2	7.9	2	3	19	3.4	83.0	87.0	122	205	324	377
FEB. 7 1987	68.9	56.3	7.9	1	12	152	5.0	82.5	87.0	125	210	351	389
FEB. 4 1989	81.9	59.7	7.8	1	3	32	0.9	83.5	87.3	127	186	296	358
AUG. 18 1989	73.9	58.7	7.8	14	6	34	0.4	83.6	87.2	122	203	334	375
OCT. 1 1989	59.1	54.7	7.8	6	3	196	0.3	83.4	87.2	129	212	345	391
OCT. 6 1989	78.7	59.0	7.8	9	3	27	1.1	82.9	87.2	123	198	320	366
AUG. 31 1989	81.9	57.3	7.8	11	7	67	0.2	83.4	87.2	131	215	338	392
JUN. 26 1989	71.7	57.9	7.8	21	21	177	0.8	82.9	87.3	128	207	352	387
FEB. 17 1988	78.9	56.7	7.7	1	17	247	3.4	82.6	87.0	130	202	340	380
FEB. 13 1989	82.0	56.7	7.6	0	22	257	1.4	82.8	87.4	136	215	340	395
FEB. 13 1988	80.9	56.1	7.6	1	20	187	2.0	82.6	87.0	128	204	339	380
AUG. 20 1989	61.4	59.1	7.4	12	2	31	1.1	83.8	87.2	134	209	320	381
JUL. 1 1988	56.0	7.4	8	1	23	11	33.0	87.0	128	200	309	366	381
AUG. 2 1988	59.3	58.6	7.3	11	1	19	1.9	84.0	87.3	125	194	329	365
SEPT. 30 1989	83.6	54.2	7.2	6	6	109	1.0	82.8	87.2	132	213	340	391
AUG. 15 1988	56.1	7.1	12	12	19	109	0.4	83.3	87.2	128	205	332	378

LOS ANGELES REFINERY
PRODUCTS REPORT

BLEND NUMBER		SPEC SHEET	
SAMPLE NUMBER	5528	193	203
DATE BLEND COMPLETED	6-26-93	5529	212
SARRELS BLENDDED	06-26-93	5525	219
DATE	06-10-93	5526	234
UNIFIED CIRC	56-8	5527	245
UNIVERSITY CAT GASO	59-4	5528	248
US3 AVIA. BASE STOCK	59-4	5529	256
USO REFORMED	59-4	5530	266
U10 LITE ALKYL	59-4	5531	280
BLENDING BOTTLE	59-4	5532	286
U10 LT UNPACED	59-4	5533	291
U10 UNP LT CAT GASO	59-4	5534	297
MOTOR ALKYL	59-7	5535	300
U100 REFORMATE	59-7	5536	307
OFFSHORE GASO	59-7	5537	310
INTERFACE	59-7	5538	313
GRAVITY API 60 F.	59-7	5539	317
CORROSION 122 F.	59-7	5540	320
VAPOR PRESSURE 30 DAY AVERAGE	59-7	5541	323
W/L RATIO	59-7	5542	326
100 JAT AVERAGE	59-7	5543	329
GUM EXISTENCE 60/100 ML	59-7	5544	332
ODT RATING	59-7	5545	335
OXIDATION STAB MINUTES	59-7	5546	338
SHOTOLE NUMBER 67/100G	59-7	5547	341
SULFUR PPM	59-7	5548	344
ALKANOL SULFUR PPM	59-7	5549	347
30 DAY AVERAGE	59-7	5550	350
LEAD GO/UL (TANK)	59-7	5551	353
LEAD GO/UL (TANK)	59-7	5552	356
WATER O/TANK	59-7	5553	359
50 JAT AVERAGE	59-7	5554	362
ODT RATING	59-7	5555	365
30 DAY AVERAGE	59-7	5556	368
LEAD GO/UL (TANK)	59-7	5557	371
RECOVERY VOL PCT	59-7	5558	374
20 VOL PCT	59-7	5559	377
10 VOL PCT	59-7	5560	380
5 VOL PCT	59-7	5561	383
1 VOL PCT	59-7	5562	386
100 VOL PCT	59-7	5563	389
SHOTOLE NUMBER 67/100G	59-7	5564	392
SULFUR PPM	59-7	5565	395
ALKANOL SULFUR PPM	59-7	5566	398
30 DAY AVERAGE	59-7	5567	401
LEAD GO/UL (TANK)	59-7	5568	404
WATER O/TANK	59-7	5569	407
50 JAT AVERAGE	59-7	5570	410
ODT RATING	59-7	5571	413
30 DAY AVERAGE	59-7	5572	416
LEAD GO/UL (TANK)	59-7	5573	419
RECOVERY VOL PCT	59-7	5574	422
20 VOL PCT	59-7	5575	425
10 VOL PCT	59-7	5576	428
5 VOL PCT	59-7	5577	431
1 VOL PCT	59-7	5578	434
100 VOL PCT	59-7	5579	437
SHOTOLE NUMBER 67/100G	59-7	5580	440
SULFUR PPM	59-7	5581	443
ALKANOL SULFUR PPM	59-7	5582	446
30 DAY AVERAGE	59-7	5583	449
LEAD GO/UL (TANK)	59-7	5584	452
WATER O/TANK	59-7	5585	455
50 JAT AVERAGE	59-7	5586	458
ODT RATING	59-7	5587	461
30 DAY AVERAGE	59-7	5588	464
LEAD GO/UL (TANK)	59-7	5589	467
RECOVERY VOL PCT	59-7	5590	470
20 VOL PCT	59-7	5591	473
10 VOL PCT	59-7	5592	476
5 VOL PCT	59-7	5593	479
1 VOL PCT	59-7	5594	482
100 VOL PCT	59-7	5595	485
SHOTOLE NUMBER 67/100G	59-7	5596	488
SULFUR PPM	59-7	5597	491
ALKANOL SULFUR PPM	59-7	5598	494
30 DAY AVERAGE	59-7	5599	497
LEAD GO/UL (TANK)	59-7	5600	500
WATER O/TANK	59-7	5601	503
50 JAT AVERAGE	59-7	5602	506
ODT RATING	59-7	5603	509
30 DAY AVERAGE	59-7	5604	512
LEAD GO/UL (TANK)	59-7	5605	515
RECOVERY VOL PCT	59-7	5606	518
20 VOL PCT	59-7	5607	521
10 VOL PCT	59-7	5608	524
5 VOL PCT	59-7	5609	527
1 VOL PCT	59-7	5610	530
100 VOL PCT	59-7	5611	533
SHOTOLE NUMBER 67/100G	59-7	5612	536
SULFUR PPM	59-7	5613	539
ALKANOL SULFUR PPM	59-7	5614	542
30 DAY AVERAGE	59-7	5615	545
LEAD GO/UL (TANK)	59-7	5616	548
WATER O/TANK	59-7	5617	551
50 JAT AVERAGE	59-7	5618	554
ODT RATING	59-7	5619	557
30 DAY AVERAGE	59-7	5620	560
LEAD GO/UL (TANK)	59-7	5621	563
RECOVERY VOL PCT	59-7	5622	566
20 VOL PCT	59-7	5623	569
10 VOL PCT	59-7	5624	572
5 VOL PCT	59-7	5625	575
1 VOL PCT	59-7	5626	578
100 VOL PCT	59-7	5627	581
SHOTOLE NUMBER 67/100G	59-7	5628	584
SULFUR PPM	59-7	5629	587
ALKANOL SULFUR PPM	59-7	5630	590
30 DAY AVERAGE	59-7	5631	593
LEAD GO/UL (TANK)	59-7	5632	596
WATER O/TANK	59-7	5633	599
50 JAT AVERAGE	59-7	5634	602
ODT RATING	59-7	5635	605
30 DAY AVERAGE	59-7	5636	608
LEAD GO/UL (TANK)	59-7	5637	611
RECOVERY VOL PCT	59-7	5638	614
20 VOL PCT	59-7	5639	617
10 VOL PCT	59-7	5640	620
5 VOL PCT	59-7	5641	623
1 VOL PCT	59-7	5642	626
100 VOL PCT	59-7	5643	629
SHOTOLE NUMBER 67/100G	59-7	5644	632
SULFUR PPM	59-7	5645	635
ALKANOL SULFUR PPM	59-7	5646	638
30 DAY AVERAGE	59-7	5647	641
LEAD GO/UL (TANK)	59-7	5648	644
WATER O/TANK	59-7	5649	647
50 JAT AVERAGE	59-7	5650	650
ODT RATING	59-7	5651	653
30 DAY AVERAGE	59-7	5652	656
LEAD GO/UL (TANK)	59-7	5653	659
RECOVERY VOL PCT	59-7	5654	662
20 VOL PCT	59-7	5655	665
10 VOL PCT	59-7	5656	668
5 VOL PCT	59-7	5657	671
1 VOL PCT	59-7	5658	674
100 VOL PCT	59-7	5659	677
SHOTOLE NUMBER 67/100G	59-7	5660	680
SULFUR PPM	59-7	5661	683
ALKANOL SULFUR PPM	59-7	5662	686
30 DAY AVERAGE	59-7	5663	689
LEAD GO/UL (TANK)	59-7	5664	692
WATER O/TANK	59-7	5665	695
50 JAT AVERAGE	59-7	5666	698
ODT RATING	59-7	5667	701
30 DAY AVERAGE	59-7	5668	704
LEAD GO/UL (TANK)	59-7	5669	707
RECOVERY VOL PCT	59-7	5670	710
20 VOL PCT	59-7	5671	713
10 VOL PCT	59-7	5672	716
5 VOL PCT	59-7	5673	719
1 VOL PCT	59-7	5674	722
100 VOL PCT	59-7	5675	725
SHOTOLE NUMBER 67/100G	59-7	5676	728
SULFUR PPM	59-7	5677	731
ALKANOL SULFUR PPM	59-7	5678	734
30 DAY AVERAGE	59-7	5679	737
LEAD GO/UL (TANK)	59-7	5680	740
WATER O/TANK	59-7	5681	743
50 JAT AVERAGE	59-7	5682	746
ODT RATING	59-7	5683	749
30 DAY AVERAGE	59-7	5684	752
LEAD GO/UL (TANK)	59-7	5685	755
RECOVERY VOL PCT	59-7	5686	758
20 VOL PCT	59-7	5687	761
10 VOL PCT	59-7	5688	764
5 VOL PCT	59-7	5689	767
1 VOL PCT	59-7	5690	770
100 VOL PCT	59-7	5691	773
SHOTOLE NUMBER 67/100G	59-7	5692	776
SULFUR PPM	59-7	5693	779
ALKANOL SULFUR PPM	59-7	5694	782
30 DAY AVERAGE	59-7	5695	785
LEAD GO/UL (TANK)	59-7	5696	788
WATER O/TANK	59-7	5697	791
50 JAT AVERAGE	59-7	5698	794
ODT RATING	59-7	5699	797
30 DAY AVERAGE	59-7	5700	800
LEAD GO/UL (TANK)	59-7	5701	803
RECOVERY VOL PCT	59-7	5702	806
20 VOL PCT	59-7	5703	809
10 VOL PCT	59-7	5704	812
5 VOL PCT	59-7	5705	815
1 VOL PCT	59-7	5706	818
100 VOL PCT	59-7	5707	821
SHOTOLE NUMBER 67/100G	59-7	5708	824
SULFUR PPM	59-7	5709	827
ALKANOL SULFUR PPM	59-7	5710	830
30 DAY AVERAGE	59-7	5711	833
LEAD GO/UL (TANK)	59-7	5712	836
WATER O/TANK	59-7	5713	839
50 JAT AVERAGE	59-7	5714	842
ODT RATING	59-7	5715	845
30 DAY AVERAGE	59-7	5716	848
LEAD GO/UL (TANK)	59-7	5717	851
RECOVERY VOL PCT	59-7	5718	854
20 VOL PCT	59-7	5719	857
10 VOL PCT	59-7	5720	860
5 VOL PCT	59-7	5721	863
1 VOL PCT	59-7	5722	866
100 VOL PCT	59-7	5723	869
SHOTOLE NUMBER 67/100G	59-7	5724	872
SULFUR PPM	59-7	5725	875
ALKANOL SULFUR PPM	59-7	5726	878
30 DAY AVERAGE	59-7	5727	881
LEAD GO/UL (TANK)	59-7	5728	884
WATER O/TANK	59-7	5729	887
50 JAT AVERAGE	59-7	5730	890
ODT RATING	59-7	5731	893
30 DAY AVERAGE	59-7	5732	896
LEAD GO/UL (TANK)	59-7	5733	899
RECOVERY VOL PCT	59-7	5734	902
20 VOL PCT	59-7	5735	905
10 VOL PCT	59-7	5736	908
5 VOL PCT	59-7	5737	911
1 VOL PCT	59-7	5738	914
100 VOL PCT	59-7	5739	917
SHOTOLE NUMBER 67/100G	59-7	5740	920
SULFUR PPM	59-7	5741	923
ALKANOL SULFUR PPM	59-7	5742	926
30 DAY AVERAGE	59-7	5743	929
LEAD GO/UL (TANK)	59-7	5744	932
WATER O/TANK	59-7	5745	935
50 JAT AVERAGE	59-7	5746	938
ODT RATING	59-7	5747	941
30 DAY AVERAGE	59-7	5748	944
LEAD GO/UL (TANK)	59-7	5749	947
RECOVERY VOL PCT	59-7	5750	950
20 VOL PCT	59-7	5751	953
10 VOL PCT	59-7	5752	956
5 VOL PCT	59-7	5753	959
1 VOL PCT	59-7	5754	962
100 VOL PCT	59-7	5755	965
SHOTOLE NUMBER 67/100G	59-7	5756	968
SULFUR PPM	59-7	5757	971
ALKANOL SULFUR PPM	59-7	5758	974
30 DAY AVERAGE	59-7	5759	977
LEAD GO/UL (TANK)	59-7	5760	980
WATER O/TANK	59-7	5761	983
50 JAT AVERAGE	59-7	5762	986
ODT RATING	59-7	5763	989
30 DAY AVERAGE	59-7	5764	992
LEAD GO/UL (TANK)	59-7	5765	995
RECOVERY VOL PCT	59-7	5766	998
20 VOL PCT	59-7	5767	1001
10 VOL PCT	59-7	5768	1004
5 VOL PCT	59-7	5769	1007
1 VOL PCT	59-7	5770	1010
100 VOL PCT	59-7	5771	1013
SHOTOLE NUMBER 67/100G	59-7	5772	1016
SULFUR PPM	59-7	5773	1019
ALKANOL SULFUR PPM	59-7	5774	1022
30 DAY AVERAGE	59-7	5775	1025
LEAD GO/UL (TANK)	59-7	5776	1028
WATER O/TANK	59-7	5777	1031
50 JAT AVERAGE	59-7	5778	1034
ODT RATING	59-7	5779	1037
30 DAY AVERAGE	59-7	5780	1040
LEAD GO/UL (TANK)	59-7	5781	1043
RECOVERY VOL PCT	59-7	5782	1046
20 VOL PCT	59-7	5783	1049
10 VOL PCT	59-7	5784	1052
5 VOL PCT	59-7	5785	1055
1 VOL PCT	59-7	5786	1058
100 VOL PCT	59-7	5787	1061
SHOTOLE NUMBER 67/100G	59-7	5788	1064
SULFUR PPM	59-7	5789	1067
ALKANOL SULFUR PPM	59-7	5790	1070
30 DAY AVERAGE	59-7	5791	1073
LEAD GO/UL (TANK)	59-7	5792	1076
WATER O/TANK	59-7	5793	1079
50 JAT AVERAGE	59-7	5794	1082
ODT RATING	59-7	5795	1085
30 DAY AVERAGE	59-7	5796	1088
LEAD GO/UL (TANK)	59-7	5797	1091
RECOVERY VOL PCT	59-7	5798	1094
20 VOL PCT	59-7	5799	1097
10 VOL PCT	59-7	5800	1100
5 VOL PCT	59-7	5801	1103
1 VOL PCT	59-7	5802	1106
100 VOL PCT	59-7	5803	1109
SHOTOLE NUMBER 67/100G	59-7	5804	1112
SULFUR PPM	59-7	5805	1115
ALKANOL SULFUR PPM	59-7	5806	1118
30 DAY AVERAGE	59-7	5807	1121
LEAD GO/UL (TANK)	59-7	5808	1124
WATER O/TANK	59-7	5809	1127
50 JAT AVERAGE	59-7	5810	1130
ODT RATING	59-7	5811	1133
30 DAY AVERAGE	59-7	5812	1136
LEAD GO/UL (TANK)	59-7	5813	1139
RECOVERY VOL PCT	59-7	5814	1142
20 VOL PCT	59-7	5815	1145

```
1   * d:\niper\lit75uc.sas
2   * This program reads in the literature fuels and searches for any
3   * fuels that have RVP < 7.5 psi, T50 <= 215F, T90 <= 315F,
4   * paraffins > 65%, olefins < 10%, R+M/2 >= 8%, and are unleaded
5   * and contain oxygenate
6   ;
7
8   options pagesize =43 linesize =80;
9
10  data one;
11    infile 'd:\niper\lit75uc.dat' missover;
12    input public $ 1-13 page $ 14-18 table $ 19-25 fuel $ 27-35
13      rvp 36-38 t50 40-42 t90 44-46 olef 48-51 arom 53-56
14      sats 58-61 lead $ 62-63 ron 64-68 mon 70-73 mtbe 75-78
15      etoh 79-82 etbe 84-87 ipa 89-92 tba 93-97
16      comments $ 99-121 rm2 122-127 owt 128-132 ;
17      r = (ron + mon)/2;
18      if r = . then x = rm2;
19      rm = round(r,.1);
20      mtbe = round(mtbe,.1);
21      etoh = round(etoh,.1);
22      etbe = round(etbe,.1);
23      ipa = round(ipa,.1);
24      tba = round(tba,.1);
25      length calc $ 1;
26      if sats = . and arom ne . then do;
27        sats = 100 - arom - olef;
28        calc = '';
29      end;
30      tot = arom + olef + sats;
31      total = round(tot,1);
32      /*if lead =? ' then lead = 'P';
33      /*if rvp < 7.5;
34      /*if rvp ne .;
35      /*format rm 5.1 ;
36      /*if olef < 10;
37      /*if sats > 65;
38      /*if T90 <=315;
39      /*if T50 <=215;
40      /*if rm >= 67;
41      /*if mtbe ne . or
42      /*if etbe ne . or
43      /*if etoh ne . or
44      /*if ipa ne . or
45      /*if tba ne . ;
46
47      title1 "Fuels Survey";
48      title2 "Publications Pre '91 in SN 08/077,243 f. 6/14/93 Jessup et
49      al.";
50
51      label rm = 'R+M/2'
52      rvp = 'Rvp*(psi)'
53      T50 = 'T50*(F)'
54      T90 = 'T90*(F)'
55      arom = '%Arom-%atrics'
56      olef = '%Ole-%fins'
```

```
57      sats = 't*Satu-*rates'
58      total = 'T*(2)'
59      public = 'Article*(4)'
60      lead = 'NB*(3)'
61      page = 'Pg*(5)'
62      table = 'Table*(5)'
63      fuel = 'Fuel'
64      calc = 'C*(1)'
65      mtbe = 'MTBE*(t)'
66      etoh = 'EtOH*(t)'
67      etbe = 'ETBE*(t)'
68      ipa = 'IPA*(t)'
69      tba = 'TBA*(t)'
70      comments = 'Comments'
71      ;
72
73
74      proc sort;
```

NOTE: The infile 'd:\niper\lit75uc.dat' is file D:\NIPER\LIT75UC.DAT.

NOTE: 293 records were read from the infile D:\NIPER\LIT75UC.DAT.

The minimum record length was 129.

The maximum record length was 129.

NOTE: Missing values were generated as a result of performing an operation on missing values.

Each place is given by: (Number of times) at (Line):(Column).

```
268 at 20:27
283 at 21:27
291 at 22:27
291 at 23:26
291 at 24:26
124 at 17:14
49 at 19:22
210 at 30:18
105 at 31:27
27 at 27:17
```

NOTE: The data set WORK.ONE has 0 observations and 26 variables.

NOTE: The DATA statement used 9.00 seconds.

```
75      by rvp descending T50 descending T90;
76      proc print label split = '*' r uniform;
```

NOTE: The data set WORK.ONE has 0 observations and 26 variables.

NOTE: The PROCEDURE SORT used 1.00 seconds.

```
77      var      rvp t50 t90 olef arom sats calc total
78      mtbe etoh etbe ipa tba rm lead public page table fuel comments;
79
80      run;
```

WARNING: (No) observations in data set WORK.ONE.

NOTE: The PROCEDURE PRINT used 0.00 seconds.